Protecting the Sound from the Adverse Effects of Toxic Substances

Toxic substances can cause adverse human and ecosystem health risks, and can result in significant negative economic impacts on the value of the natural resources of the Sound.

Strategy **:**

The CCMP strategy to address toxic contamination in LIS has five principal elements: 1) toxic contaminant source controls and prevention; 2) addressing sediment contamination; 3) improving human health risk management; 4) monitoring and assessment of toxic contaminants; and 5) research to investigate toxic contamination. There are 5 *Ongoing Programs* and *26 CCMP Actions* for this priority area. In 1999, of the 26 *CCMP Actions*, 5 are *Complete*; 4 are either *Partially Addressed*, or *Behind Schedule*; 13 are classified as *Not Initiated*; 3 are reported elsewhere in this report.

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Highlights:

- **EPA and ACOE signed a Letter of Agreement in April 1998 to designate open water disposal sites under the Marine Protection, Research and Sanctuaries Act (MPRSA). The agencies jointly held public meetings in Connecticut and New York in1999 to gather public comment and input on the site designation process, proposed workplan, and site selection evaluation criteria and methodology. The designation process is expected to be completed by March 2002.**

- **The LISS held a *Dredging and the Environment* workshop in March 1999 for Connecticut and New York residents to increase the opportunity for public discussion, input and feedback to the regulatory agencies on dredged material management in LIS. The workshop complemented efforts by EPA and the ACOE to begin the process of designating dredged material disposal sites in LIS.**

- **In 1999 CTDEP received a fellowship award from NOAA's Coastal Services Center for development of a Long Island Sound Sediment Quality Information Database (SQUID) using GIS and associated databases, which include such spatial and attribute data as: sewer treatment outfalls; combined sewer outfalls; industrial discharges; oil & chemical spills; landfills; stormwater outfalls; and locations in the Sound and harbors where sediment testing has been conducted. The Coastal Management Fellow began work at DEP in November 1999.**

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SUMMARY OF MANAGEMENT ACTIONS: TOXIC SUBSTANCES

1. TOXIC CONTAMINANT SOURCE CONTROLS AND POLLUTION PREVENTION (CCMP TABLE 21, P. 65)				
Ongoing Program	**Responsible Parties**	**Status[2]**	**Description**	**Upcoming Action**
T1-1. The states of Connecticut and New York and the Army Corps of Engineers will continue to regulate dredging and the disposal of dredged sediments through the existing permit programs.	**CTDEP NYSDEC NYSDOS NYSDOH ACOE EPA**	Fully Met	The LISS sponsored a *Dredging and the Environment* workshop on March 19, 1999 to facilitate public discussion and input to enable the states of NY and CT to propose a final Plan for Disposal of Dredged Material in Long Island Sound. EPA/ACOE held a series of public meetings in NY/CT in 1999 to obtain public input into the dredged material EIS process. The states of Connecticut and New York continue to regulate and enforce dredging activities. CTDEP, with LISS funding produced a report in 1998, *Long Island Sound Dredged Material Management Approach*. Dredging of Mamaroneck Harbor and disposal of dredged material was completed in 1999. EPA and ACOE signed a Letter of Agreement in 1998 on site designation under MPRSA in LIS, which schedules completion of the process by March 2002.	LISS will develop recommendations on whether to update the interim Plan for Disposal of Dredged Material in LIS. EPA will conduct public workshops in 2000 as part of the EIS workplan.
T1-2. The states of Connecticut and New York and the EPA will continue their pretreatment programs to ensure that toxic discharges to sewage treatment plants are controlled. The states of Connecticut and New York, through their Pollution Discharge Elimination System Programs, will continue to ensure that facilities comply with their permit limits.	**CTDEP NYSDEC EPA**	Substantive Progress	CTDEP's municipal facilities program continues to oversee municipal reports of monitoring discharges to ensure toxic contaminants are within individual permit limits. The NYC pretreatment of influent is being implemented.	
T1-3. The states of Connecticut and New York and the EPA will apply pollution-prevention techniques, as appropriate, to both direct and indirect discharges of toxic substances by emphasizing wastewater minimization, recycling of wastewater, and alternative processes and chemicals to reduce toxicity and toxics loads and to minimize effects on all environmental media.	**CTDEP NYSDEC EPA**	Partial Progress	Connecticut's policy is embodied in state legislation (P.A. 91-376). CTDEP published its Pollution Prevention Plan in October 1996, targeting consumers, industry, and government to control targeted substances. A special section on nonpoint source runoff to LIS highlights these needs. NYSDEC launched an enforcement initiative designed to bolster compliance with regulations requiring registration and tightness testing of petroleum bulk storage tanks. In NYS, as a result of a negotiated regulatory rule making during 1999, dry cleaners were required to control emissions of toxic perchloroethylene.	

KEY

1) Type: Commitment; Recommendation

2) Status for dated actions: Complete, Ahead of Schedule, On Schedule, Behind Schedule, Partially Addressed, Not Initiated

Status for *Ongoing Programs* and ongoing *CCMP Actions*: Fully Met, Substantive Progress, Partial Progress, Discontinued

1. TOXIC CONTAMINANT SOURCE CONTROLS AND POLLUTION PREVENTION (CCMP TABLE 21, P. 65)

Ongoing Program	Responsible Parties	Status[2]	Description	Upcoming Action
T1-4. The states of Connecticut and New York will review municipal and industrial discharge permits to surface waters to reduce the allowable concentrations of toxic pollutants from the previous permitted values.	**CTDEP NYSDEC EPA**	Partial Progress	NYSDEC analyses municipal and industrial discharge permits in response to applications and renewal applications on a regular schedule. CTDEP, through permitting and enforcement programs, regularly reviews and monitors permit compliance. An aggressive tracking and testing (bioassay) program is in place for municipal, industrial and storm water permittees to ensure point source discharges are adequately treated and protective of aquatic resources. TMDL analyses will further reduce toxic contaminant loads, where needed. Eighty-five municipal and more than 20 private and/or state facilities are covered by this program. From 1989-1999 approximately 4,700 toxicity tests have been performed and results reported to DEP. A 75 percent reduction in the number of CT facilities discharging potentially toxic effluent has been observed over the last ten ears.	Two facilities upgrading treatment of effluent. It is anticipated that these upgrades will follow the current (historical) trend of non-toxic effluents observed at upgraded facilities. CTDEP will continue toxicity testing of STP discharges in 2000.

1. TOXIC CONTAMINANT SOURCE CONTROLS AND POLLUTION PREVENTION (CCMP TABLE 21, P. 65)CCMP

CCMP Action	Type[1]	Responsible Parties	When	Estimated Cost	Status[2]	Description	Upcoming Action
T1-5. The LISS will encourage adequate funding to continue and expand pollution prevention site visit programs targeting industrial dischargers to the Sound and its tributaries.	**C**	**LISS**	**Initiated 1993/ Continuing**	**Minimal staff time**	**Complete**	**EPA awarded $105,000 in FY94 to the Connecticut Hazardous Waste Management Service's Technical Assistance Program (ConnTAP) to target its existing pollution prevention site visit program at industries with direct and indirect wastewater discharges to Long Island Sound and its tributaries. The grant funds were supplemented with several other funding sources for a total of $253,500. ConTAP completed the project in June 1997 and submitted a final report in January 1998. ConTAP was eliminated from State budget effective July 1, 1997.**	
T1-6. As part of the NY-NJ Harbor Estuary Program, total maximum daily loads, wasteload allocations for point sources, and load allocations for nonpoint sources will be developed to ensure that water quality standards for mercury are met in the Harbor, the East River, and Long Island Sound.	**C**	**HEP NJDEP NYSDEC EPA**	**1994**	**Redirection of base program**	**Complete**	**Phase I TMDL for mercury has been completed. EPA, NYSDEC, and NJDEP convened a workgroup in 1998 to develop Phase II mercury TMDL and TMDLs as necessary for toxic organics.**	

KEY

1) Type: Commitment; Recommendation

2) Status for dated actions: Complete, Ahead of Schedule, On Schedule, Behind Schedule, Partially Addressed, Not Initiated

Status for *Ongoing Programs* and ongoing *CCMP Actions*: Fully Met, Substantive Progress, Partial Progress, Discontinued

1. TOXIC CONTAMINANT SOURCE CONTROLS AND POLLUTION PREVENTION (CCMP TABLE 21, P. 65)CCMP

CCMP Action	Type[1]	Responsible Parties	When	Estimated Cost	Status[2]	Description	Upcoming Action
T1-7. As part of the New York - New Jersey Harbor Estuary Program, the states of New York and New Jersey will establish water quality-based effluent limits for copper, mercury, and six other toxic metals, as necessary. Permits will be subsequently modified.	**C**	**NJDEP NYSDEC**	**Complete by 12/94**	**Redirection of base program**	**Complete**	**NYSDEC has modified NYC sewage treatment plant permit limits for metals. Additional WLAs will be developed through the TMDLs described in T1-6.**	
T1-8. Support education on the environmental impact of using home, garden, and commercial hazardous chemicals and pesticides and continue to provide guidance on how to minimize use of these chemicals and properly dispose of them through household hazardous waste collection.	**R**	**LISS**	**Initiated 1993/ Continuing**	**$20,000. See Public Involvement and Education**		See Public Involvement and Education.	
T1-9. Evaluate mass loadings of toxic contaminants and determine their relationship to ambient water and sediment quality.	**R**	**LISS CTDEP NYSDEC**		**$200,000 per year**	Partially Addressed	In 1999 CTDEP received a fellowship award from NOAA's Coastal Services Center for development of a Long Island Sound Sediment Quality Information Database (SQUID) using GIS and associated databases, which include such spatial and attribute data as: sewer treatment outfalls; combined sewer outfalls; industrial discharges; oil & chemical spills; landfills; stormwater outfalls; and locations in the Sound and harbors where sediment testing has been conducted. The Coastal Management Fellow began work at DEP in November 1999.	For 2000 it is expected the SQUID project will have a base GIS established and completion of a bulk chemistry database.
T1-10. Identify and assign priorities to toxic substances which should be banned from use and for which *virtual elimination of discharge* should be the goal.	**R**	**LISS CTDEP NYSDEC**		**$200,000 per year**	Not Initiated	Funding and staffing limitations.	

KEY

1) Type: Commitment; Recommendation

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Status for *Ongoing Programs* and ongoing *CCMP Actions*: Fully Met, Substantive Progress, Partial Progress, Discontinued

2. ADDRESSING SEDIMENT CONTAMINATION (CCMP TABLE 22, P. 67)							
CCMP Action	**Type[1]**	**Responsible Parties**	**When**	**Estimated Cost**	**Status[2]**	**Description**	**Upcoming Action**
T2-1. The LISS will review the National Oceanic and Atmospheric Administration (NOAA) 1991 sediment chemistry and toxicity survey results of harbors and embayments, when available in the Spring 1994.	**C**	**LISS NOAA**	**Upon report completion**	**Existing staff to be used**	Not Initiated	Funding and staffing limitations.	
T2-2. The LISS will provide a preliminary review of the data on sediment contamination on a site-by-site basis. State and federal experts will evaluate the problem at each site and recommend additional assessments needed to fully characterize the problem, ascertain the need for and feasibility of remediation and prepare a remediation plan.	**C**	**LISS**	**Ongoing**	**Existing staff to be used**	Not Initiated	Funding and staffing limitations.	
T2-3. The City of Glen Cove plus their Review Committee will evaluate the contamination of Glen Cove Creek.	**C**	**NYSDEC City of Glen Cove**	**1994/1995**	**$250,000.**	On Schedule	In 1999, dredging was completed in the mouth and downstream portions of Glen Cove Creek. The City was awarded $1.4 million as part of a Federal initiative to restore polluted industrial sites for subsequent development for human use. Glen Cove and Stamford, CT are two of 16 communities in the U.S. chosen as Brownfields Showcase Communities. Bulkheading portions of Glen Cove Creek to permit further dredging was completed in 1999.	Dredging of mid- and upper portions of Glen Cove Creek to be completed. Stamford plans to reclaim the harbor area as an economic and recreational resource.
T2-4. The LISS will review and evaluate sediment remediation approaches developed in the Great Lakes ARCS Program and HEP.	**C**	**LISS**	**1994/1995**	**Existing staff to be used**	Not Initiated	Funding and staffing limitations.	

KEY

1) Type: Commitment; Recommendation

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Status for *Ongoing Programs* and ongoing *CCMP Actions*: Fully Met, Substantive Progress, Partial Progress, Discontinued

2. ADDRESSING SEDIMENT CONTAMINATION (CCMP TABLE 22, P. 67)

CCMP Action	Type[1]	Responsible Parties	When	Estimated Cost	Status[2]	Description	Upcoming Action
T2-5. Conduct further assessments and develop site plans addressing the feasibility, technical approach, cost and value of conducting remediation activities for Black Rock Harbor and Glen Cove Creek, where data may be sufficient to conduct case study analyses. Recommend other harbors for characterization and feasibility studies to be conducted at a rate of two harbors per year.	**R**	**LISS**	**Ongoing**	**$250,000 per harbor or $500,000 per year.**	Partial Progress	A contract for excavating and removing landfill at the Captain's Cove facility in Glen Cove was awarded in 1999. Demolition of shell structures for previously planned condominiums at the Captain's Cove facility were demolished in April 1999.	Demolition of the Captain's Cove site to be completed.

3. IMPROVING HUMAN HEALTH RISK MANAGEMENT (CCMP TABLE 23, P. 68)

CCMP Action	Type[1]	Responsible Parties	When	Estimated Cost	Status[2]	Description	Upcoming Action
T3-1. The LISS will advocate the coordination between the states of Connecticut and New York to review health risk and advisory recommendations and formulate plans to ensure consistency.	**C**	**LISS CTDEP CTDOHS NYSDEC NYSDOH**	**Initiated 1994/ Continuing**	**No Cost**	Not Initiated	Funding and staffing limitations.	
T3-2. Develop strategies for controlling loadings of contaminants for which seafood consumption advisories have been issued.	**R**	**LISS CTDEP NYSDEC**		**$150,000 per year.**	Partially Addressed	CTDEP is using SEP and Long Island Sound Research Funds to support: 1) a study of Hg abundances in LIS sediments(Complete); 2) an evaluation of seafood consumption rates in CT since national estimates of consumption may be too low and consumption advisories are based on these rates (Complete); and 3) an evaluation of Hg sources and cycling in LIS (On schedule). Also funded was a study of Hg levels in fish from LIS and the CT River.	Complete the third study. Continue monitoring Hg deposition in LIS (UCONN) in 2000.
T3-3. Develop a strategy for identifying toxic substances of human health risk concern in Long Island Sound seafood species and tolerance levels for those substances.	**R**	**LISS**		**$150,000 per year.**	Not Initiated	Funding and staffing limitations.	

KEY

1) Type: Commitment; Recommendation

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Status for *Ongoing Programs* and ongoing *CCMP Actions*: Fully Met, Substantive Progress, Partial Progress, Discontinued

4. MONITORING AND ASSESSMENT OF TOXIC CONTAMINANTS (CCMP TABLE 24, P. 71)

Ongoing Programs	Responsible Parties	Status[2]	Description	Upcoming Action
T4-1. The mussel watch and benthic surveillance components of NOAA'a Status and Trends Program and the EPA's Environmental Monitoring and Assessment Program provide regular and systematic sampling of contaminant levels in the Sound.	**NOAA EPA**	Partial Progress	NOAA's Status and Trends Program has continued. However, new sampling under EPA's EMAP program has been scaled back. The program is now focusing on data analysis and environmental indicator development.	CTDEP will participate in EPA's Coastal 2000 monitoring program that builds upon EMAP.

4. MONITORING AND ASSESSMENT OF TOXIC CONTAMINANTS (CCMP TABLE 24, P. 71)

CCMP Action	Type[1]	Responsible Parties	When	Estimated Cost	Status[2]	Description	Upcoming Action
T4-2. A monitoring workshop was held to integrate findings of the LISS and develop a comprehensive, Soundwide monitoring plan for toxic substances.	**C**	**LISS**	**Initiated 1993/ Completed 1994**	**$25,000**	**Complete**	**See Action M 1-7.**	
T4-3. Under the auspices of the New York- New Jersey Harbor Estuary Program (HEP), the U.S. Army Corps of Engineers has agreed to develop a work plan and budget to develop systemwide models for PCBs, mercury, and other toxic pollutants that will provide the technical foundation for comprehensive efforts to eliminate these contamination problems in the Sound-Harbor-Bight system. The Corps of Engineers and other participants have agreed to seek the funding necessary to complete these models. Special attention will be directed to fully account for nonpoint sources of mercury.	**C**	**HEP USACOE**	**1994**	**Existing staff to be used**	Partial Progress	A systemwide model has been developed (Farley-Thomann Model). Field sampling for HEP Contaminant Assessment Reduction Program (CARP) in support of Farley-Thomann Model improvement and validation began in 1999. This includes some sampling in LIS as boundary conditions to NY/NJ Harbor.	Additional modules or sub-models are to be developed. Also, improvements in the model's detail are planned.

KEY

1) Type: Commitment; Recommendation

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Status for *Ongoing Programs* and ongoing *CCMP Actions*: Fully Met, Substantive Progress, Partial Progress, Discontinued

4. MONITORING AND ASSESSMENT OF TOXIC CONTAMINANTS (CCMP TABLE 24, P. 71)							
CCMP Action	**Type[1]**	**Responsible Parties**	**When**	**Estimated Cost**	**Status[2]**	**Description**	**Upcoming Action**
T4-4. Monitoring initiatives will be coordinated with the EPA Regional - Environmental Monitoring and Assessment Program (R-EMAP) to further the understanding of sediment toxicity and benthic community structure gradients in western Long Island Sound.	**C**	**CTDEP NYSDEC EPA**	**Field Work Initiated 1993/ Completed 1994**	**$200,000**	**Complete**	**A final *report Sediment Quality of the NY/NJ Harbor System* was issued in March 1998. The study area extended into western LIS.**	
T4-5. Conduct site-specific characterization surveys of water, sediment and biota in harbors where active sources of toxic substances are believed to persist at a rate of two harbors per year.	**R**	**CTDEP NYSDEC**		**$200,000 per harbor; or $400,000 per year.**	Not Initiated	Funding not identified.	
T4-6. Identify sources and sites of PCB loadings to the Sound ecosystem from in-Sound and NY-NJ Harbor Estuary sources. Focus on reducing and eliminating PCB loadings on a priority basis, concentrating on areas of known contamination such as Black Rock Harbor.	**R**	**CTDEP NYSDEC EPA**		**$200,000 per year**	Not Initiated	Funding not identified.	
T4-7. Monitor contaminant levels in selected estuarine organisms to ascertain their effects on the biology of the species and their effects on the edibility of the species.	**R**	**LISS CTDEP NYSDEC EPA NMFS USFWS**		**$300,000 per year**	Not Initiated	CTDEP periodically assesses tissue contaminant levels for key seafood species.	Mercury study listed in T3-2 complete. Coastal 2000 will include tissue analysis of finfish.
T4-8. Implement the recommendations from the LISS Monitoring Plan to improve contaminant monitoring.	**R**	**LISS**		**$15,000.**	Not Initiated	Funding not identified.	

KEY

1) Type: Commitment; Recommendation

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Status for *Ongoing Programs* and ongoing *CCMP Actions*: Fully Met, Substantive Progress, Partial Progress, Discontinued

5. RESEARCH TO INVESTIGATE TOXIC CONTAMINATION (CCMP TABLE 25, P. 73)

CCMP Action	Type[1]	Responsible Parties	When	Estimated Cost	Status[2]	Description	Upcoming Action
T5-1. The relationship between organism body burdens and their toxic response needs to be investigated as an important mechanism of toxic impact.	**R**	**University Research**		**$250,000 per year**	Not Initiated	Funding not identified.	
T5-2. Trophic level transfer and bioaccumulation effects of contaminants up the food chain need to be quantified to better manage both the aquatic community and human health risk.	**R**	**University Research - State Health Risk Agencies**		**$500,000 per year**	Not Initiated	Funding not identified.	
T5-3. While toxicity testing of sediments and waters is an efficient means of identifying toxicity problems, the relationship between toxicity and specific causative agents needs to be determined.	**R**	**University Research/ Research Lab**		**$500,000 per year**	Not Initiated	Funding not identified.	
T5-4. Evaluate the use of an ecological risk assessment approach, demonstrated in the LISS Black Rock Harbor Action Plan Demonstration Project, for more widespread application to identify toxicity and its sources in embayments and harbors of the Sound.	**R**	**LISS CTDEP NYSDEC EPA**		**$100,000**	Not Initiated	Funding not identified.	
T5-5. Continue to monitor finfish and crustaceans of the Sound with emphasis on determining population response to low dissolved oxygen.	**R**	**CTDEP**	**Continuing**	**See Living Marine Resources and Habitat**		(See Action L9-1)	

KEY

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